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Why do parents send their children to school earlier? Evidence from China

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Abstract

Parents in different countries appear to have different opinions on the timing of sending their children to school. While studies in U.S. claim that U.S. parents tend to hold back their children even when they are legally eligible to attend school, papers on Chinese education show that Chinese parents prefer their kids to have an early start. This paper, with a particular focus on background introduction and literature review, aims to examine the reasons behind Chinese parents sending their children to school as early as possible. The main research question is: why do Chinese parents send their children to school earlier? Specifically, we test the impact of financial status, access to education and workforce, gender of the child, and having siblings on parents' decision.

Motivation

Most countries specify an appropriate age for primary school enrollment, but parents' response to the enrollment cut-off date vary. The 1986 Compulsory Education Law states that "parents must send their children to primary school once they reach six years of age by August 31 of that year"[1], indicating that one cannot send his/her children to school if they haven't

[1] 1986 Compulsory Education Law. Retrieved from http://english.www.gov.cn/archive/laws_regulations/2014/08/23/content_281474983042154.htm.

reached age 6 by August 31. Therefore, children born on or before August 31 could enter school at a relatively young age, whereas those born after September 1 must delay starting by one year. For instance, a boy was born on August 31, 2000, he would be eligible to attend primary school on September 1, 2006; his sister was born one day after, on September 1, but she would have to wait till September 1, 2007, to enter school. It was not until 2017 when the Ministry of Education announced that this was not a national-wide criterion anymore, and each province could set its own school enrollment cut-off dates based on local conditions.

From my personal experience growing up in China, it is commonly observed that parents send their children to school as early as possible and allocate a portion of their income having their children tutored outside of primary school. It has become a cultural phenomenon that most parents firmly believe the notion of "early bird catches the warm", and that they do not want their children to "lose at the starting line". As a result, in response to the policy established by the Compulsory Education Law, many Chinese parents gave early birth to their children[2] in order to catch the cutoff date for school entry. However, interestingly, the situation is the complete opposite in the United States[3], where parents tend to postpone entrance into primary school of age-eligible children, a practice referred to as "red-shirting", which reflects the perception that children who have been allowed to mature for another year will benefit more from their schooling. This paper aims to explain this difference by examining the reasonings behind Chinese parents' behaviors.

[2] Cheng Huang, Shiying Zhang and Qingguo Zhao. (2020). The early bird catches the worm? School entry cutoff and the timing of births. Journal of Development Economics.
[3] Deming, David & Dynarski, Susan. (2008). The Lengthening of Childhood. Journal of Economic Perspectives.

Past Literatures

While the topics of school entry age cutoff date and the results of entering school earlier or later remain controversial among Chinese households, there are not many literatures on the effect of school starting age and the reasons behind early or delayed school entry.

The first relevant paper is "*The early bird catches the worm? School entry cutoff and the timing of births*", by Cheng Huang, Shiying Zhang and Qingguo Zhao in 2020. Using administrative data on birth certificates of millions of newborns in Guangdong Province of China from 2014 to 2016, they found that more than 2000 births in a single year were shifted from seven days after the cutoff date to seven days before the cutoff date. To the best of our knowledge, this is the only Chinese research conducted on birth manipulation due to primary education reasons. With a regression discontinuity design, they showed that there were "too few" birth in the first week of September, indicating that parents who are expected to give birth at a time close to the cutoff date would deliberately shorten their pregnancies to deliver before September. They also found that parents with high-skilled jobs and higher economic status are more likely to bring births forward. This result is important in forming an answer to our main research question. Intuitively, we would imagine families with lower income are more fragile to an additional year of preschool cost, and thus are more likely to manipulate the timing of birth. In this case, it must be that some other factors are more influential than financial reasons. A possible explanation is that advantaged families have better access to top-quality medical services so that it is easier for them to perform timed birth, another reason could be that they have better knowledge of school entry laws, it is also possible that better-paid

parents are firmer believer of the "early bird catches the worm" notion and they do not want their children to lose to those of their fellow workmates.

Another paper that touches upon the compliance of 1986 Compulsory Education Law is "*Does the school cutoff date cause the disadvantage for children born in July and August?*" by Chunni Zhang and Yu Xie in 2018[4]. It contains an examination of the impact of the Compulsory Education Law on school starting age. As shown in Figure 1 (Xie and Zhang, 2018), using data from the 1992 Survey of the Living Situation of Chinese Children, they plot the actual age of school entry by the child's birth month to see if the August 31st cutoff date creates a

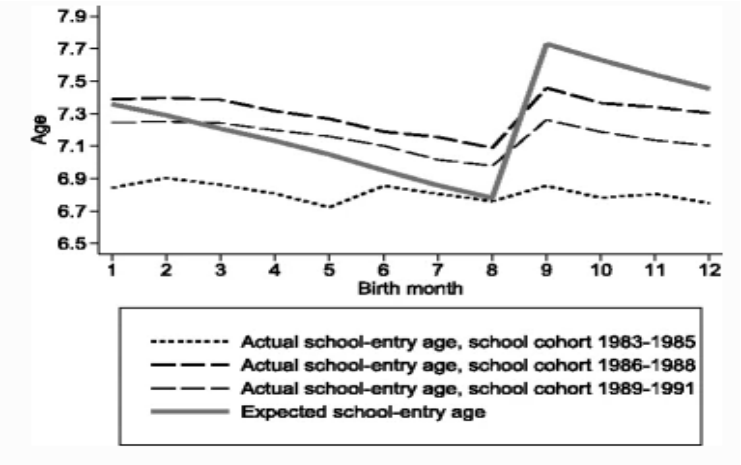

Figure 1: Children's birth month vs. primary school entry age[5]

discontinuity of school starting ages between August-born and September-born children in post-1986 school cohorts. From the figure we can observe that the starting ages of children who entered primary school before 1986, which is illustrated using 1983-1985 data, did not

[4] Zhang, Chunni & Xie, Yu. (2018). Does the school cutoff date cause the disadvantage for children born in July and August? Journal of Chinese Sociology 5, 4 (2018).
[5] Zhang, Chunni & Xie, Yu. (2018). Does the school cutoff date cause the disadvantage for children born in July and August? Journal of Chinese Sociology 5, 4 (2018).

differ much between August- and September- born children. However, in post-1986 school cohorts, we clearly observe the impact of the Compulsory Education Law. Starting ages of children gradually decline from January to August, have a sudden jump in September, and return to the gradual decrease. The difference between the 1986-1988 and 1989-1991 cohorts is that the average school entry age of the 1989–1991 school cohort was lower and closer to the age threshold at 6, while that of the earlier school cohort was higher than 7. Thus, it is concluded that "more provinces began to adopt age 6 as the threshold for school entry with the promotion of the Compulsory Education Law over time." (Xie and Zhang, 2018) With data from the 21st century, we can perform similar tests and examine if the parents nowadays strictly follow the requirements enforced by the Compulsory Education Law.

There are a few other papers that study the effect of delayed school starting age as a result of the school entry cutoff date in China. The results of these paper help us shape the incentives behind parents' decision to send their children to school at different ages. Li and Liu in their 2015[6] paper "*Children born in July and August: a study on the age regulation in primary school and student's education access and development*" examine the relationship between birth months and educational outcomes in middle school. They find evidence that show that "students born in July and August display a relative disadvantage and adaptive difficulties in the construction of self-identity and study ability when compared with those born in September and October." (Li and Liu, 2015)

[6] Liu, Dehuan & Li, Xuelian. (2016). Children born in July and August: a study on the age regulation in primary school and student's education access and development. Journal of Chinese Sociology 3, 22 (2016).

"*School entry age and educational attainment in developing countries: Evidence from China's compulsory education law*" is a 2020 paper written by Jiaying Chen and Albert Park[7]. They find that "the probability of attending high school falls by 3.6 percentage points when school enrollment is postponed by one year," (Chen and Park, 2020) and that those who start school later are not better learners, and are more influenced by labor market demand when deciding whether to attend high school. In other words, the negative delayed enrollment effect is primarily driven by the higher opportunity cost for older students upon middle school graduation. The result brings forward an interesting factor: since 16 is the legal minimum employment age in China, if one delays primary school enrollment by one year and enroll at age 7 instead of 6, by the time of graduation from middle school, he/she would be 16 years old and is eligible work right away; if a student starts school at age 6 like everyone else and graduate from middle school at 15, he/she is still a year away from being able to work. This could be a reason why the probability of attending high school is less when school enrollment is delayed. Moreover, with a regression discontinuity design, "*Ready for school? Impacts of delayed primary school enrollment on children's educational outcomes in rural China*", by Qihui Chen in 2015[8], concludes that "a one-year delay in school enrollment increases the incidence of first grade retention by approximately 10 percentage points for boys and reduces the probabilities of middle school enrollment by 6 percentage points for both boys and girls," (Chen, 2015)

[7] Chen, Jiaying & Park, Albert. (2021). School entry age and educational attainment in developing countries: Evidence from China's compulsory education law. Journal of Comparative Economics.
[8] Chen, Qihui. (2015). Ready for school? Impacts of delayed primary school enrollment on children's educational outcomes in rural China. International Journal of Educational Development, Elsevier, vol. 45(C), pages 112-128.

indicating that delayed enrollment in primary school negatively affects a student's educational development and attainment.

Similar results are found elsewhere that seem to support the "early bird catches the warm" notion. The paper "*School starting age and academic achievement: Evidence from China's junior high schools*"[9] shows that a one-year delay is associated with a 0.303 decrease in standard deviations of cognitive scores. It contributes to the idea that lack of human capital accumulation causes both the late school entry and the negative effects. The "results indicate that the negative effects of age of entry are larger and statistically significant for children from rural schools but smaller and statistically insignificant for children from urban schools" (Zhang et al, 2016), and that starting age is negatively associated with the length of preschool participation. Thus, in such rural areas of China, children with delayed entry are more likely to receive little guidance and skills development before they enter primary school and are inevitably disadvantaged in school. Following this, the 2017 paper[10] "*Impacts of Late School Entry on Children's Cognitive Development in Rural Northwestern China—Does Preprimary Education Matter*?" by Qihui Chen, using instrumental variables, also finds that delay in school entry reduces children's scores on a cognitive ability test administered when they were aged 9–12, and that the negative late-school-entry effect is significantly larger in villages with no preprimary schools. Thus, children born in disadvantaged parents and families in rural China are

[9] Zhang, Shiying & Zhong, Ruoyu & Zhang, Junchao. (2017). School starting age and academic achievement: Evidence from China's junior high schools. China Economic Review.
[10] Chen, Qihui. (2017). Impacts of Late School Entry on Children's Cognitive Development in Rural Northwestern China—Does Preprimary Education Matter? Asia & the Pacific Policy Studies.

more likely to delay school enrollment, which further enlarges the gap in education attainment between them and other students.

Finally, the 2020 paper[11] "*Why am I late for school? Peer effects on delayed school entry in rural northwestern China*" by Qihui Chen estimates peer effects on children's school entry age. This is one of the very few papers in China that discuss the reasonings behind earlier or delayed school entry. Using instrumental-variable estimation, it shows that a one-year increase in older peers' school entry age raises a child's school entry age by 0.43 years. Also, this effect is "much stronger than the effects of family background factors such as birth order, parental education and family wealth, suggesting that the dominant driving force of delayed school enrollment lies outside of the family." (Chen, 2020) This brings to our attention a very important factor of our interest: peer effect. The reasoning behind the fact that "the early bird catches the warm" is widely accepted and adopted is that Chinese parents put significant value in their children not falling behind their peers. Comparison is prevalent. Therefore, when most children in the surrounding environment were sent to school earlier, parents would like to send their own children to school earlier; and vice versa.

Although there are few papers in China that study the causes of delayed school entry, such studies are conducted in many other developing countries. The causes include malnutrition (Glewwe and Jacoby[12], 1995), sibling competition (Lindskog[13], 2013), poverty

[11] Chen, Qihui. (2020). Am I Late for School? Peer Effects on Delayed School Entry in Rural Northwestern China. 2020 Annual Meeting, July 26-28, Kansas City, Missouri 304415, Agricultural and Applied Economics Association.
[12] Glewwe, P. & Jacoby, H.G. (1995). An economic analysis of delayed primary school enrollment in a low-income country: The role of early childhood nutrition. Review of Economics and Statistics, 77(1), 156-169.
[13] Lindskog, Annika. (2013). The effect of siblings' education on school-entry in the Ethiopian highlands. Economics of Education Review, 34, 45-68.

(Seshie-Nasser and Oduro[14], 2016), low parental education (Moyi[15], 2010), and parental death (Moyi[16], 2011).

However, these results found in China and other developing countries contradict those shown in the United States. Most studies in U.S. find that delayed enrollment has positive effects on future outcomes including test scores, education attainment, and earnings[17][18]. Similar results are also seen in other developed countries[19].

Thus, a question appears to be worthy of discussion: is the impact of delayed enrollment on long-term educational attainment different in developing and in developed countries? There seems to be a tradeoff between off between an extra year in preschool and an extra year in the labor market. If the answer to the question is yes, then the driving force of Chinese parents' decision to send their children to school at an early age could lie in the key differences between developing and developed countries: financial reasons, educational resources, etc. Most existing literatures examine the relationship between the starting age of primary schooling and subsequent education and labor market outcome, but very little in China has touched upon the incentives that shape parents' decision to send children to school earlier or later.

[14] Seshie-Nasser H.A. & Oduro, A.D. (2016). Delayed primary school enrolment among boys and girls in Ghana. International Journal of Educational Development, 49, 107-114.
[15] Moyi, Peter. (2010). Household characteristics and delayed school enrollment in Malawi. International Journal of Educational Development, 30(3), 236-242.
[16] Moyi, Peter. (2011). Delayed School Entry in Uganda. Research in Comparative and International Education, 6(2), 222-235.
[17] McEwan, Patrick & Shapiro, Joseph. (2008). The Benefits of Delayed Primary School Enrollment: Discontinuity Estimates Using Exact Birth Dates. Journal of Human Resources.
[18] Dhuey, Elizabeth & Bedard, Kelly. (2006). The Persistence of Early Childhood Maturity: International Evidence of Long-Run Age Effects. Quarterly Journal of Economics.
[19] Puhani, Patrick & Weber, Andrea. (2007). Does the Early Bird Catch the Worm? Instrumental Variable Estimates of Educational Effects of Age of School Entry in Germany. Empirical Economics.

Data

There are a few datasets that could be used for our purposes. The first dataset is the China Education Panel Survey (CEPS)[20], conducted by the National Survey Research Center at Renmin University. The CEPS is a school-based nationally representative survey with a multi-stage stratified probability proportional to size sampling design that focuses on junior high school students, starting with two cohorts – the 7th and 9th graders in the 2013-2014 academic year. The CEPS administers 5 questionaries, including the student questionnaire, which includes topics such as students' demographic characteristics, migration status, childhood experience, health status, household structure, in-school performance, etc. This would allow us to link a student's school entry age to a number of pre-school characteristics, and to his or her long-term educational attainment.

Another dataset is the China Family Panel Studies (CFPS), a nationally representative, annual longitudinal survey of Chinese communities, families, and individuals launched in 2010 by the Institute of Social Science Survey (ISSS) of Peking University, China. Interviewing almost 15,000 families and almost 30,000 individuals within these families, it collects individual-, family-, and community-level longitudinal data in contemporary China. Detailed educational histories are also presented.

[20] http://ceps.ruc.edu.cn/

Model Discussion

In this section, a few possible factors that could influence a child's school entry time are discussed. The first factor is the financial status of the family. This can be discussed in two different settings: before entering school and after graduation. For parents, sending their children to school a year earlier reduces preschool costs, and the opportunity cost of staying at home to take care of their children. In China, primary and middle school are free of tuition, and most schools provide the option for students to live on campus during weekdays, so that by sending their children to school parents are able to return to their full-time jobs rest assured. Also, enrolling in school a year earlier normally results in entering the workforce a year earlier after graduation, and thus one will be open to more opportunities and potentially make more money. Therefore, based on this factor, one can expect that normally, low-income families will have more incentives to send their children to school earlier.

The second factor is the access to education and workforce. The analysis above generally applies to families in urban area. But in many rural areas of China, with the problem of poverty and lack of investment in children's education, there might simply be not enough space in school for all children to enroll. Thus, a large number of children would have to wait for an addition year to start school. This could also be the result of the lack of access to pre-primary education, as well as the low level of parental education. Moreover, another possible reason why parents might delay sending their children to school is discussed when we introduced Chen and Park's paper[21] in the literatures section: if a child goes to school at age 7, he or she would

[21] Chen, Jiaying & Park, Albert. (2021). School entry age and educational attainment in developing countries: Evidence from China's compulsory education law. Journal of Comparative Economics.

graduate from middle school at age 16 and is eligible to work right away. In many rural areas of China this is crucial since many students do not attend high school. Thus, in this case delaying school enrollment by one year might lead to much greater employment opportunities at the time of middle school graduation, provided that college education is not be affordable for some families. Therefore, for the second factor one can actually expect that low-income families have incentives to send their children to school later, which contradicts the result from the first factor.

The third factor is the influence of siblings and peers. For families that have more than one child, parents might consider sending the elder children to school later, or younger children to school earlier, so that their grades do not fall too far apart. This would not only provide better environment for siblings to take care of each other, but also allow parents to return to work sooner after sending their younger children to school. Peer effects are also significant, as Chen concludes in his paper[22] that when most children in the surrounding environment were sent to school earlier, parents would want their own children to go to school earlier.

Finally, the last possible factor is the gender of the child. In general, it is perceived that girls mature faster than boys. Thus, it is likely that parents might want to send a girl to school earlier and a boy to school later such that their children won't be too mature or immature among their classmates.

[22] Refer to Past Literatures section. Chen, Qihui. (2020). Am I Late for School? Peer Effects on Delayed School Entry in Rural Northwestern China. 2020 Annual Meeting, July 26-28, Kansas City, Missouri 304415, Agricultural and Applied Economics Association.